California Regional Water Quality Control Board
North Coast Region

MONITORING AND REPORTING PROGRAM NO. R1-2003-0064

FOR

SAMOA PACIFIC CELLULOSE, LLC,
LOUISIANA PACIFIC CORPORATION

SAMOA CLASS III SOLID WASTE DISPOSAL SITE

Humboldt County

The Discharger shall maintain water quality monitoring systems that are appropriate for detection monitoring and corrective action, and that comply with Subchapter 3, Chapter 3, Subdivision 1, Division 2, Title 27, CCR, and any other applicable provisions therein.

Compliance with this Monitoring and Reporting Program (MRP), and with the companion Standard Provisions and Reporting Requirements, is ordered by Waste Discharge Requirements (WDRs) Order No. R1-2003-0064. Failure to comply with this MRP, or with the General Monitoring and Reporting Requirements, constitutes non-compliance with the WDRs and with Division 7 of the Water Code, which can result in the imposition of civil monetary liability.

I. REPORTING

The Discharger shall report monitoring data and information as required in this Monitoring and Reporting Program and as required in the General Monitoring and Reporting Requirements. Reports which do not comply with the required format will be rejected and the Discharger shall be deemed to be in noncompliance with the WDRs.

A narrative discussion of the monitoring results, including notations of any water quality violations shall precede tabular summaries of the water quality data. In reporting the monitoring data required by this program, the Discharger shall arrange the data in tabular form so that the date, the constituents, the concentrations, and the units are readily discernible. The data shall be summarized in such a manner so as to illustrate clearly the compliance with waste discharge requirements or the lack thereof. A map showing the location of the wells, location of the Waste Management Units (WMU), and groundwater contours for the given quarter shall be included with each monitoring report. Each monitoring report shall include a summary and certification of completion of all standard observations such as leachate seeps and discharges, condition of drainage facilities, erosion, or other problems, which could affect compliance with the WDRs.

The results of any monitoring done more frequently than required at the locations specified herein shall be reported to the Regional Water Board in the monitoring report(s) for that period. Method detection limits and practical quantification limits shall be reported. All peaks shall be reported, including those that cannot be quantified and/or specifically identified.

A. REQUIRED REPORTS

1. Detection Monitoring Report

Detection Monitoring Reports (DMRs) shall be prepared and submitted to the Regional Water Board quarterly by the dates listed below. The reports shall include the results of all monitoring programs listed herein. The established monitoring and reporting period is as follows:

QUARTER	PERIOD NO.	DUE DATE[1]	
January, February, March	1	April 15	
April, May, June	2	July 15	
July, August, September	3	October 15	
October, November, December	4	January 31	Annual Report date

2. Annual Report

An Annual Report, which summarizes the monitoring results for the prior four quarters, shall be submitted to the Regional Water Board so that it is received no later than January 31 of the year following the year being reported. The report shall contain both tabular and graphical summaries of the detection monitoring data and a discussion of compliance with WDRs and the Water Quality Protection Standard (WQPS). In lieu of submitting a separate report, the Annual Report information may be included with the Fourth Quarter DMR. Historical and current monitoring data obtained during the previous 36 months shall be graphed at least once annually and submitted within the Annual Report. Graphs for the same constituent shall be plotted at the same scale to facilitate visual comparison of monitoring data. The Annual Report shall include a map showing any areas of differential settlement, highlighting areas of repeat or severe differential settlement. This map shall be made by or under the direction of a professional civil engineer or registered geologist. The Annual Report shall also include the results of any additional monitoring, including soil gas monitoring.

3. Water Quality Protection Standard Report

Louisiana Pacific Corporation submitted a water quality protection standard report titled *Article 5 Water Quality Monitoring Program for the Louisiana Pacific Corporation's Samoa Landfill* dated May 1998. Any changes to the water quality protection standard are to be included in the Annual Report.

4. Five Year Iso-Settlement Map

The Discharger shall produce an iso-settlement map by October 2003, October 2008, and every five years thereafter until the Executive Officer has determined that differential settlement is unlikely to be of such magnitude as to impair either the Unit's containment

[1] The due date is the date by which the report must be received by the Regional Water Board.

features (e.g., final cover) or the free drainage of surface flow. The map shall be submitted to the Regional Water Board with or prior to the third quarter report for that year. The iso-settlement map shall accurately depict the estimated total change in elevation of each portion of the final cover's low-hydraulic-conductivity layer. Therefore, for each portion of the landfill, this map shall show the total lowering of the surface elevation of the final cover, relative to the baseline topographic map produced at closure, and shall indicate all areas where visually noticeable differential settlement may have been obscured by grading operations. The map shall be drawn to the same scale and contour interval as the topographic map produced at closure, but showing the current topography of the final cover and featuring overprinted isopleths indicating the total settlement to-date. This map shall be made by or under the direction of a professional civil engineer or registered geologist and be stamped and signed. The Executive Officer may suspend this requirement for any given WMU upon finding two successive versions of the iso-settlement map indicate that the WMU has stabilized.

5. **Annual Erosion Control Report**

By October 15, annually, the Discharger shall submit with the third quarter report to the Executive Officer a narrative describing any measures taken to comply with erosion control requirements. This shall include a description of any erosion control measures implemented, and any necessary construction, maintenance, or repairs of precipitation and drainage control facilities. The Executive Officer may delete the requirement for submitting annual erosion control reports upon finding that no erosion control work is necessary prior to the return of winter rains.

6. **Constituents of Concern (COC)**

The results of COC monitoring shall be submitted with, or reported in, the Quarterly Report for the date matching the sampling event. COC sampling shall occur every five years, or more frequently if required. The groundwater monitoring COC sampling shall alternate between fall and spring seasons; Spring 2007, Fall 2012, and every five years thereafter.

7. **Constituents of Concern Detection Report (Leachate)**

If constituents of concern that are not currently being analyzed for in the quarterly monitoring well sampling are detected in leachate, then the leachate may be re-sampled for those constituents within 30 days of receiving the results from the initial sampling. If confirmed by re-test or not re-tested, then these constituents shall be added to the quarterly monitoring well sampling. The Discharger shall report any changes to the monitoring well sampling program, made as a result of leachate sampling data, to the Regional Water Board no later than 45 days after re-sampling. If no new constituents are detected, submittal of this report is not necessary and any leachate results shall be reported with the corresponding quarterly report.

8. **Notification of Release and Re-test**

For any WMU, if the results of a detection monitoring program show that there is a measurably significant increase in any indicator parameter or waste constituent over the WQPS at or beyond the points of compliance (i.e., measurably significant evidence of an exceedence or release), the Discharger shall:

a. immediately notify the Regional Water Board by telephone or fax of the exceedence,
b. within seven days of the initial findings, follow up with written notification (or acknowledgment of the Board's finding),
c. within 30 days of the initial finding, re-sample for the constituent(s) or parameter(s) at the point where the standard was exceeded, and
d. within 60 days of the initial finding, submit the results of the re-sampling and statistical analysis, indicating whether or not an exceedence or release was confirmed by the re-test.

9. **Responding to a Release Discovery**

Upon verifying measurably significant evidence of a release from a WMU according to Section 20420(j) of Title 27 and Section A.6 of this MRP, the Discharger shall follow the procedures and timeline described in Section 20420(k) of Title 27.

II. MONITORING PROGRAMS

A. ROUTINE MAINTENANCE

The disposal site shall be inspected on a bimonthly basis. At a minimum, the integrity of the cover material, including animal holes, differential settlement, and surface water ponding; drainage structures; potential erosion areas; and potential slope failures shall be inspected and documented. Any leachate seeps or discharges shall be mapped and sampled as necessary. Inspection logs, problem areas, special occurrences, and corrective actions taken shall be included in the corresponding quarterly monitoring reports**.**

B. CONSTITUENTS OF CONCERN

Except as otherwise indicated in this Order, the Discharger shall monitor each medium of the existing landfill unit for applicable Constituents of Concern. The monitoring locations, analytical methods, and frequency of analyses are as follows:

1. **Monitoring Locations**

a. Groundwater Monitoring Wells – Wells MW-1 through MW-4.
b. Leachate Wells or Sumps – if established.

2. **Monitoring Schedule**

TABLE II. B
CONSTITUENTS OF CONCERN MONITORING

Constituents of Concern	Units	Frequency
Field Parameters		
pH	pH units	Quarterly
Specific Conductance	Mhos/cm	Quarterly
Monitoring Parameters		
Chloride	mg/l	Quarterly
Nitrate-Nitrogen	mg/l	Quarterly
Total Dissolved Solids (TDS)	mg/l	Quarterly
Chemical Oxygen Demand (COD)	mg/l	Quarterly
Hardness	mg/l	Quarterly
Volatile Organic Compounds (EPA Method 8260 – low level detection)	ug/l	Every 5 years
Semi-Volatile Organic Compounds (EPA Method 8270)	ug/l	Every 5 years
Dioxins and Furans (EPA Method 1613-A)	pg/l	Every 5 years
Polynuclear Aromatic Compounds (EPA Method 8310)	ug/l	Every 5 years
Pentachlorophenol/Tetrachlorphenol (Canadian Pulp Method)	ug/l	Every 5 years
ICAP Metals:		
Aluminum	mg/l	Quarterly
Antimony	mg/l	Every 5 years
Arsenic	mg/l	Quarterly
Barium	mg/l	Quarterly
Beryllium	mg/l	Every 5 years
Boron	mg/l	Every 5 years
Cadmium	mg/l	Every 5 years
Calcium	mg/l	Quarterly
Chromium	mg/l	Quarterly
Cobalt	mg/l	Quarterly
Copper	mg/l	Every 5 years
Iron	mg/l	Quarterly
Lead	mg/l	Every 5 years
Manganese	mg/l	Quarterly
Magnesium	mg/l	Every 5 years
Molybdenum	mg/l	Every 5 years
Nickel	mg/l	Every 5 years
Potassium	mg/l	Quarterly
Selenium	mg/l	Every 5 years
Silver	mg/l	Every 5 years
Sodium	mg/l	Quarterly
Strontium	mg/l	Quarterly
Thallium	mg/l	Every 5 years

Constituents of Concern	Units	Frequency
Tin	mg/l	Every 5 years
Vanadium	mg/l	Quarterly
Zinc	mg/l	Every 5 years

C. LEACHATE SEEP MONITORING

1. Monitoring Locations

There are no established leachate seep monitoring locations. Any seeps located during bimonthly inspections shall be sampled as soon as possible, but no more than 7 days after the discovery.

2. Monitoring Schedule

Leachate monitoring shall be conducted as specified in Table II.C when leachate seeps are present. Samples shall be collected upon discovery of any given seep and tested for all analytes in Table II. C. Subsequently, samples shall be collected monthly during flow and tested for any analytes that were detected in the initial sampling. See Section I. A.7. for reporting requirements when constituents which are not part of the quarterly groundwater monitoring are detected. Leachate results shall be reported with the corresponding quarterly report.

TABLE II.C
LEACHATE MONITORING PROGRAM

Parameter	Units
Field Parameters	
Volume outhauled	gallons per day
Specific Conductance	mhos/cm
pH	pH units
Monitoring Parameters	
Chloride	mg/l
Parameter	**Units**
Nitrate-Nitrogen	mg/l
Total Dissolved Solids (TDS)	mg/l
Chemical Oxygen Demand (COD)	mg/l
Hardness	mg/l
Volatile Organic Compounds (EPA Method 8260 – low level detection)	ug/l
Semi-Volatile Organic Compounds (EPA Method 8270)	ug/l
Dioxins and Furans (EPA Method 1613-A)	pg/l
Polynuclear Aromatic Compounds (EPA Method 8310)	ug/l
Pentachlorophenol/Tetrachlorphenol (Canadian Pulp Method)	ug/l
ICAP Metals:	
Aluminum	mg/l
Antimony	mg/l
Arsenic	mg/l

Parameter	Units
Barium	mg/l
Beryllium	mg/l
Boron	mg/l
Cadmium	mg/l
Calcium	mg/l
Chromium	mg/l
Cobalt	mg/l
Copper	mg/l
Iron	mg/l
Lead	mg/l
Manganese	mg/l
Magnesium	mg/l
Molybdenum	mg/l
Nickel	mg/l
Potassium	mg/l
Selenium	mg/l
Silver	mg/l
Sodium	mg/l
Strontium	mg/l
Thallium	mg/l
Tin	mg/l
Vanadium	mg/l
Zinc	mg/l

E. GROUNDWATER ELEVATION MONITORING

Groundwater elevations measured prior to purging the well and sampling for Monitoring Parameters shall be used to fulfill the groundwater gradient/direction analyses required. For each monitored groundwater body, the Discharger shall measure the water level in each well and shall determine groundwater gradient and direction at least quarterly, including the times of expected highest and lowest elevations of the water level for the respective groundwater body. Groundwater elevations for all upgradient and downgradient wells for a given groundwater body shall be measured within a period of time short enough to avoid temporal variations in groundwater flow which could preclude accurate determination of groundwater gradient and direction. This information shall be included in the quarterly monitoring reports.

III. DETECTION MONITORING

A. GENERAL

The Discharger shall perform Detection Monitoring on all media potentially affected by a release, including surface water, groundwater, and the unsaturated zone. For any given monitored medium, a sufficient number of samples shall be taken from all Monitoring Points and

Background Monitoring Points to satisfy the data analysis requirements for a given Reporting Period, and shall be taken in a manner that ensures sample independence to the greatest extent feasible.

The Discharger shall use a Board-approved statistical (or non-statistical) procedure to determine whether there has been a measurably significant increase in a constituent over the water quality protection standard, as set forth in Section 20415(e)(5) of Title 27.

B. UNSATURATED ZONE

Any landfill gas monitoring results shall be included with the quarterly monitoring program reports.

C. GROUNDWATER

The groundwater surface elevation (in feet and hundredths, M.S.L.) in all wells shall be measured on a quarterly basis and used to determine the velocity and direction of groundwater flow. Additional monitoring wells shall be added to the program as needed.

1. Monitoring Locations

The groundwater detection monitoring points for Samoa SWDS, shown in Attachment B, are as follows:

Background Monitoring Wells:	MW-3 and MW-4
Downgradient Monitoring Wells:	MW-1 (during wet season) and MW-2
Point of Compliance Wells:	MW-1 and MW-2

Water levels shall be monitored quarterly in compliance with Title 27 CCR. Any additional monitoring wells constructed at the site shall be added to the monitoring network. Samples shall be collected from all installed wells at the frequency and for the parameters specified in Table III.C.

2. Monitoring Schedule

The analytes and frequency of groundwater monitoring is as follows:

TABLE III.C.
GROUNDWATER DETECTION MONITORING PROGRAM

Parameter	Units	Frequency
Field Parameters		
pH	pH units	Quarterly
Specific Conductance	Mhos/cm	Quarterly
Temperature	°C	Quarterly
Groundwater Elevations	feet/tenths TOC	Quarterly
Monitoring Parameters		

Parameter	Units	Frequency
Chloride	mg/l	Quarterly
Nitrate-Nitrogen	mg/l	Quarterly
Total Dissolved Solids (TDS)	mg/l	Quarterly
Chemical Oxygen Demand (COD)	mg/l	Quarterly
Hardness	mg/l	Quarterly
ICAP Metals:		
Aluminum	mg/l	Quarterly
Arsenic	mg/l	Quarterly
Barium	mg/l	Quarterly
Calcium	mg/l	Quarterly
Chromium	mg/l	Quarterly
Cobalt	mg/l	Quarterly
Iron	mg/l	Quarterly
Manganese	mg/l	Quarterly
Potassium	mg/l	Quarterly
Sodium	mg/l	Quarterly
Strontium	mg/l	Quarterly
Vanadium	mg/l	Quarterly

IV. WATER QUALITY PROTECTION STANDARD

The Water Quality Protection Standard (Standard) consists of the following elements:

A. Constituents of Concern;
B. Concentration Limits;
C. Monitoring Points;
D. Points of Compliance; and
E. Compliance Period.

Each of these is described as follows:

A. Constituents of Concern

The Constituents of Concern (COCs) required under Section 20395 of Title 27 shall include all constituent groups identified in Table II.B. The Discharger shall monitor all COCs every five years or more frequently as required under the detection monitoring program.

B. Concentration Limits

The Concentration Limit for any given Constituent of Concern or Monitoring Parameter in a given monitored medium (i.e., the uppermost aquifer) at a landfill shall be as follows, and shall be used as the basis of comparison for data from the Monitoring Points in that monitored medium:

a. Concentration limits for man made chemicals shall be set at method detection limits;

b. Concentration limits for naturally occurring compounds are determined by intrawell comparison using the Tolerance Limit statistical method.

c. A concentration limit greater than background, as approved by the Board for use during or after corrective action.

C. Monitoring Points

1. Unsaturated Zone - The Discharger shall submit copies of any gas monitoring that is conducted at the Samoa SWDS.

2. Groundwater – The groundwater monitoring points for leak detection are MW-1, MW-2, MW-3, and MW-4.

D. Point of Compliance

The Point of Compliance is the downgradient (western) boundary of the WMUs (see Attachment B). The groundwater wells at or nearest the Point of Compliance are MW-1 and MW-2. These wells shall be used to measure compliance with the standard.

E. Compliance Period

The Compliance Period is the number of years equal to the active life of the landfill plus the closure period. The Compliance Period for this landfill is 29 years. Each time the Standard is exceeded (i.e., a release is discovered), the landfill begins a Compliance Period on the date the Board directs the Discharger to begin an Evaluation Monitoring Program. If the Discharger's Corrective Action Program has not achieved compliance with the Standard by the scheduled end of the Compliance Period, the Compliance Period is automatically extended until the landfill has been in continuous compliance for at least three consecutive years.

The Discharger shall implement the above monitoring program on the effective date of this Order.

Ordered by: _____

Susan A. Warner,
Executive Officer

June 26, 2003